

## WHAT IS CLAIMED IS:

## 1. A light emitting device configured:

so that a device chip, having a light emitting layer portion and a main light extraction surface formed on a first main surface thereof, is adhered on the second main surface side thereof to a metal stage while placing an electro-conductive adhesive layer in between, and is covered on the metal stage together with the electro-conductive adhesive layer, using a molding component which is composed of a polymer molding material having transparency to emission flux from the light emitting layer portion; and

so that the device chip has a section reducing portion formed in at least a portion in the thickness-wise direction thereof, wherein the sectional area normal to the thickness-wise direction continuously or step-wisely decreases from the first main surface side towards the second main surface side, a portion of the molding component comprises a first molding layer covering at least the section reducing portion and a second molding layer covering the exterior of the first molding layer, wherein the first molding layer is composed of a polymer molding material softer than that composing the second molding layer.

2. The light emitting device as claimed in Claim 1, wherein the first molding layer is composed of a silicone resin.

3. The light emitting device as claimed in Claim 1 or 2, wherein at least a portion of the second molding layer is composed of an epoxy resin.

4. A light emitting device configured:

so that a device chip, having a light emitting layer portion and a main light extraction surface formed on the first main surface thereof, is adhered on the second main surface side thereof to a metal stage while placing an electro-conductive adhesive layer in between, and is covered on the metal stage together with the electro-conductive adhesive layer, using a molding component which is composed of a polymer molding material having transparency to emission flux from the light emitting layer portion; and

so that the device chip has a section reducing portion formed in at least a portion in the thickness-wise direction thereof, wherein the sectional area normal to the thickness-wise direction continuously or step-wisely decreases from the first main surface side towards the second main surface side, and the molding component is configured at least by a polymer molding material composed of a silicone resin, in the portion thereof covering the section reducing portion.

5. A light emitting device configured:

so that a device chip, having a light emitting layer portion and a main light extraction surface formed on the first main surface thereof, is adhered on the second main surface side thereof to a metal stage while placing an electro-conductive adhesive layer in between, and is covered on the metal stage together with the electro-conductive adhesive layer, using a molding component which is composed of a polymer molding material having transparency to emission flux from the light emitting layer portion; and

so that the device chip has a section reducing portion formed in at least a portion in the thickness-wise direction thereof, wherein the sectional area normal to the thickness-wise direction continuously or step-wisely decreases from the first main surface side towards the second main surface side, and the molding component is configured at least by a polymer molding material composed of a soft material having a type-A durometric hardness specified by JIS:K6253 of 50 or smaller, in the portion thereof covering the section reducing portion.

6. The light emitting device as claimed in any one of Claims 2 to 5, wherein an Ag paste layer is formed as the electro-conductive adhesive layer so as to run off around the periphery of the second main surface of the device chip, the run-off surface of the Ag paste layer composes a paste reflective

surface, and the paste reflective surface is covered with the polymer molding material composed of a silicone resin.

7. The light emitting device as claimed in any one of Claims 1 to 6, wherein the device chip comprises a main compound semiconductor layer having a light emitting layer portion and a main light extraction surface formed on the first main surface side thereof; and a base semiconductor layer disposed on the second main surface side of the main compound semiconductor layer, the second main surface of the base semiconductor layer being adhered to the metal stage while placing an electro-conductive adhesive layer in between; and

the base semiconductor layer has a cut-off portion formed therein, so that at least a portion thereof right under the main light extraction surface is aimed to be cut off, so that a residual portion produced as a result of cutting off contains at least a portion thereof right under a main light extraction electrode, and so that at least the bottom surface of the cut-off portion configures the section reducing portion.

8. The light emitting device as claimed in Claim 7, wherein the base semiconductor layer has a section increasing portion in which the sectional area normal to the thickness-wise direction continuously or step-wisely increases from a position at least in

the midway of the thickness-wise direction towards the second main surface side thereof faced to the metal stage for adhesion.

9. The light emitting device as claimed in Claim 7, wherein the base semiconductor layer is formed so as to have a recessed curved sectional geometry on the side face thereof in the cut-off portion, and so that a portion thereof located more closer to the second main surface side as viewed from a position of the bottom of the curved side face in the thickness-wise direction forms the section increasing portion.

10. The light emitting device as claimed in Claim 8 or 9, wherein the base semiconductor layer has an outwardly-projecting, flange-like projected portion formed on the side face thereof, at the end position on the second main surface side in the thickness-wise direction, so as to compose at least a portion of the section increasing portion.

11. The light emitting device as claimed in Claim 7 to 10, wherein the main compound semiconductor layer is epitaxially grown on the first main surface of a light-absorptive compound semiconductor substrate, wherein a partial region of the first main surface of the main compound semiconductor layer is used as a main light extraction surface, and a light extraction side electrode through which operation voltage for emission is applied to the light

emitting layer portion, is formed so as to cover a portion of the first main surface of the main compound semiconductor layer; and

the light-absorptive compound semiconductor substrate has the cut-off portion formed therein, so that at least a portion thereof right under the main light extraction surface is aimed to be cut off, so that a residual substrate portion produced as a result of cutting off contains at least a portion thereof right under the main light extraction electrode, and so that at least the residual substrate portion forms the base semiconductor layer.

12. The light emitting device as claimed in Claim 1, wherein the device chip is configured so that the side face thereof is formed as an inclined surface, at least in a portion in the thickness-wise direction thereof from the first main surface towards the second main surface, so as to continuously reduce the sectional area, wherein the first molding layer is formed so as to cover the inclined surface.

13. A light emitting device configured:  
so that a device chip, having a main compound semiconductor layer having therein a light emitting layer portion and a main light extraction surface formed on the first main surface thereof, and a light-absorptive base semiconductor layer disposed on the second main surface side of the main compound semiconductor layer, is adhered on the second main surface of the

base semiconductor layer thereof to a metal stage while placing an electro-conductive adhesive layer in between, and is covered on the metal stage together with the electro-conductive adhesive layer, using a molding component which is composed of a polymer molding material having transparency to emission flux from the light emitting layer portion;

so that the base semiconductor layer has a cut-off portion formed therein, so that at least a portion thereof right under the main light extraction surface is aimed to be cut off, and so that a residual portion produced as a result of cutting off contains at least a portion thereof right under the light extraction side electrode; and

so that the second main surface of the base semiconductor layer having the cut-off portion formed therein is adhered to a metal stage while placing an electro-conductive adhesive layer in between, and the device chip in this state is covered with a molding component so that the cut-off portion is filled with a polymer molding material, wherein the base semiconductor layer has a section increasing portion in which the sectional area normal to the thickness-wise direction increases from a position at least in the midway of the thickness-wise direction towards the second main surface side thereof faced to the metal stage for adhesion.

14. The light emitting device as claimed in Claim 13, wherein at least a portion of the molding layer is composed of an epoxy resin.

15. The light emitting device as claimed in Claim 14, wherein the cut-off portion is filled with the epoxy resin.

16. The light emitting device as claimed in any one of Claims 13 to 15, wherein the base semiconductor layer is formed so as to have a recessed curved sectional geometry on the side face thereof in the cut-off portion, and so that a portion thereof located more closer to the second main surface side as viewed from a position of the bottom of the curved side face in the thickness-wise direction forms the section increasing portion.

17. The light emitting device as claimed in any one of Claims 13 to 16, wherein the base semiconductor layer has an outwardly-projecting, flange-like projected portion formed on the side face thereof, at the end position on the second main surface side in the thickness-wise direction, so as to compose at least a portion of the section increasing portion.

18. The light emitting device as claimed in Claim 13 to 17, wherein the main compound semiconductor layer is epitaxially grown on the first main surface of a light-absorptive compound



semiconductor substrate, uses a partial region of the first main surface of the main compound semiconductor layer as a main light extraction surface, and has the light extraction side electrode through which operation voltage for emission is applied to the light emitting layer portion, formed so as to cover a portion of the first main surface of the main compound semiconductor layer; and

the light-absorptive compound semiconductor substrate has the cut-off portion formed therein, so that at least a portion thereof right under the main light extraction surface is aimed to be cut off, so that a residual substrate portion produced as a result of cutting off contains at least a portion thereof right under the main light extraction electrode, and so that at least the residual substrate portion forms the base semiconductor layer.